



## INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification <sup>6</sup>:

G07B 17/04

A1

(11) International Publication Number:

WO 97/40472

(43) International Publication Date:

30 October 1997 (30.10.97)

(21) International Application Number: PCT/US97/06831

(22) International Filing Date: 23 April 1997 (23.04.97)

(30) Priority Data:

60/016,082	23 April 1996 (23.04.96)	US
60/017,911	23 April 1996 (23.04.96)	US
60/015,528	23 April 1996 (23.04.96)	US
60/016,760	3 May 1996 (03.05.96)	US

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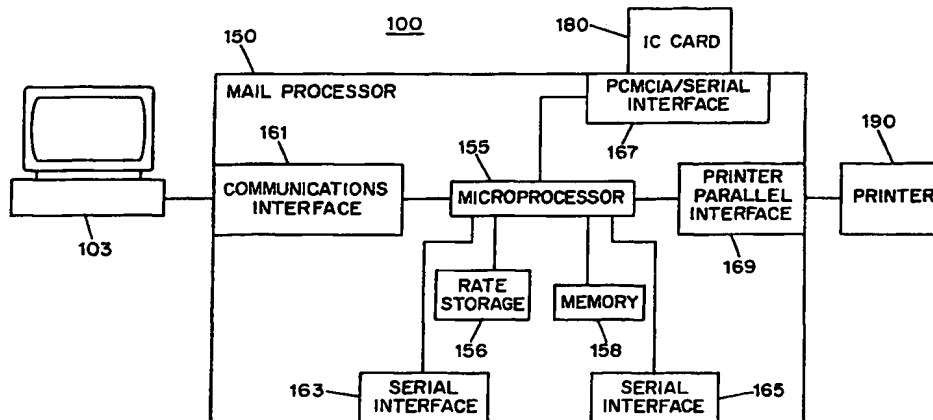
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(81) Designated States: CA, JP, US, European patent (AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE).

Published

With international search report.  
With amended claims.

(54) Title: SECURE POSTAGE PAYMENT SYSTEM AND METHOD



## (57) Abstract

In a postage payment system (100), a secure integrated circuit (IC) card (180) is used to manage postage funds, and create encrypted postage indicia (305, 605, 705). Among other things, the system (100) is capable of performing charge-back accounting of postage expenses and generating mail contents (300). In accordance with an aspect of the invention, the postage indicia (305, 605, 705) are applied to selected locations on the mail contents (300) while they are being generated. In the preferred embodiment, each mail content (300) is placed in a window envelope (340) such that the postage indicium (305, 605, 705) on the mail content (300) exposes through a window (347) of the envelope (340) to facilitate inspection of the indicium (305, 605, 705). In accordance with another aspect of the invention, by including transactional data (708) in addition to the traditional postal data (709) in a postage indicium (305, 605, 705), the indicium (305, 605, 705) can be used to pay bills, purchase products and services, including any courier service different than the postal service, or used as cash, a traveler's check, or money order.

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Claims

1. Integrated circuit (IC) card apparatus for dispensing postage comprising:
  - 5 a memory for storing first data representative of a value of postage funds;  
a processor for changing the value of the stored postage funds, the changed value being a function of a value of said postage, and
  - 10 an interface for providing second data for creation of a postage indicium indicative of the value of said postage.
2. The apparatus of claim 1 wherein said second data  
15 includes a digital signature.
3. The apparatus of claim 1 wherein said memory further includes an encryption algorithm, said second data being encrypted in accordance with said encryption algorithm.  
20
4. The apparatus of claim 3 wherein said encryption algorithm is an RSA algorithm.
5. The apparatus of claim 3 wherein said encryption  
25 algorithm is a digital signature algorithm (DSA).
6. The apparatus of claim 1 wherein said memory includes information for determining past postage dispensation.  
30
7. The apparatus of claim 1 wherein said processor changes the value of the stored postage funds in response to a purchase.

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8. Apparatus for generating a content of a mail piece, said mail piece including a cover for enclosing said content, said apparatus comprising:

5 an input for receiving data representative of at least part of said content;

a processor responsive to said data for computing costs for delivering said mail piece; and

10 an output for applying at least an indicator indicative of said costs onto said content at a selected location thereof.

9. The apparatus of claim 8 wherein said costs include postage for delivering said mail piece.

15 10. The apparatus of claim 8 wherein said indicator includes a postage indicium.

20 11. The apparatus of claim 8 wherein said indicator is applied onto said content close to an address.

12. The apparatus of claim 8 wherein information concerning said costs is read by a scanner's scanning said indicator.

25 13. The apparatus of claim 8 wherein said cover is an envelope.

30 14. The apparatus of claim 13 wherein said envelope has at least one window coinciding with said indicator such that at least part of said indicator exposes through the at least one window.

15. The apparatus of claim 8 wherein at least part of said data is indicative of the selected location.

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16. The apparatus of claim 8 wherein the selected location is a corner of said content.

17. The apparatus of claim 8 wherein said processor  
5 derives, from said data, information for determining a weight of said content.

18. The apparatus of claim 8 wherein said processor  
10 derives, from said data, information concerning pagination of the content.

19. The apparatus of claim 8 wherein said processor  
15 derives, from said data, information concerning an address.

20. The apparatus of claim 19 wherein said information includes zip code information.

21. The apparatus of claim 8 wherein said processor  
20 derives, from said data, information for identifying at least one party to which said costs are attributed.

22. The apparatus of claim 8 wherein said processor  
25 computes said costs based on one or more selected shipping rates.

23. The apparatus of claim 8 further comprising a memory for storing a database.

30 24. The apparatus of claim 23 wherein said database includes statistical information based on said costs.

25. The apparatus of claim 23 wherein said database includes information identifying said mail piece for  
35 tracking thereof.

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26. Apparatus for processing at least one mail piece to be delivered comprising:

an interface for obtaining from the mail piece selected information appearing thereon; and

5 a processor responsive to at least the selected information for determining whether postage is dispensed to pay for delivery of the mail piece.

27. The apparatus of claim 26 wherein said interface  
10 includes a connector for connecting a scanner to said apparatus.

28. The apparatus of claim 26 wherein the selected  
15 information is represented by a bar-code on said mail piece.

29. The apparatus of claim 26 wherein the selected  
information includes data identifying an originator of  
said mail piece.

20 30. The apparatus of claim 29 wherein the processor disallows a dispensation of the postage when said originator is determined to be unauthorized to expend the postage.

25 31. The apparatus of claim 29 wherein the originator is an individual.

30 32. The apparatus of claim 29 wherein the originator is an organization.

33. The apparatus of claim 26 wherein the selected  
information includes information representative of an  
authorization code.

35

34. The apparatus of claim 26 further comprising a receiver for receiving data representative of costs of said delivery.

5 35. The apparatus of claim 34 wherein the processor determines whether the postage is dispensed in response also to said data.

36. Postage dispensing apparatus comprising:  
10 a processor for creating a postage indicium, said postage indicium including a proof of payment for service by a first party, and transactional data comprising at least information representative of a transaction amount, said first party causing said transaction amount to be  
15 paid to a second party in response to at least said transactional data when said first party processes said postage indicium; and  
an output for generating said postage indicium.

20 37. The apparatus of claim 36 wherein said transactional data includes information identifying said second party.

38. The apparatus of claim 36 wherein said transactional data includes information concerning an originator of  
25 said postage indicium.

39. The apparatus of claim 36 wherein said transactional data includes an indicator indicative of a method by which the transaction amount is paid to the second party.  
30

40. The apparatus of claim 39 wherein said method includes an electronic funds transfer.

41. The apparatus of claim 36 wherein said transactional data includes a personal identification number (PIN).  
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81. The apparatus of claim 80 wherein said tangible medium includes a label.

82. A system for dispensing postage comprising:

5 an IC card apparatus including a memory for storing first data representative of a value of postage funds;

a processor in said IC card apparatus for changing the value of the stored postage funds as a function of a value of said postage;

10 an interface in said IC card apparatus for providing second data for creation of a postage indicium indicative of the value of said postage; and

an output responsive to said second data for generating a postage indicium indicative of the value of  
15 said postage.

83. The system of claim 82 further comprising a computer.

20 84. The system of claim 83 wherein said computer is a personal computer (PC).

85. The system of claim 82 further comprising a control element for controlling access to said system.

25

86. The system of claim 82 further comprising a management information subsystem for processing documents.

30 87. The system of claim 86 wherein said documents include invoices.

88. The system of claim 82 further comprising an address cleanser for checking address information on mail pieces  
35 processed by the system.

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99. The system of claim 97 wherein said facsimile information includes a digital signature for authenticating the facsimile transmission.

5 100. The system of claim 82 further comprising a receiver for receiving facsimile information.

10 101. The system of claim 100 wherein said facsimile information is encrypted, said receiver includes a decoder for decrypting the encrypted facsimile information.

15 102. The system of claim 100 wherein said facsimile information includes a digital signature, said receiver includes a mechanism for verifying said digital signature.

20 103. The system of claim 82 wherein said memory further includes an encryption algorithm, said second data being encrypted in accordance with said encryption algorithm.

104. The system of claim 103 wherein said encryption algorithm is an RSA algorithm.

25 105. The system of claim 103 wherein said encryption algorithm is a DSA.

30 106. The system of claim 82 wherein said memory includes information for determining past postage dispensation.

107. A method for use in an IC card apparatus for dispensing postage comprising the steps of:  
storing first data representative of a value of postage funds;

changing the value of the stored postage funds, the changed value being a function of a value of said postage, and

5 providing second data for creation of a postage indicium indicative of the value of said postage.

108. The method of claim 107 wherein said second data includes a digital signature.

10 109. The method of claim 107 wherein said second data is encrypted in accordance with an encryption algorithm.

110. The method of claim 109 wherein said encryption algorithm is an RSA algorithm.

15 111. The method of claim 109 wherein said encryption algorithm is a DSA.

20 112. The method of claim 107 wherein the value of the stored postage funds is changed in response to a purchase.

25 113. A method for generating a content of a mail piece, said mail piece including a cover for enclosing said content, said method comprising the steps of:

receiving data representative of at least part of said content;

computing costs for delivering said mail piece in response to said data; and

30 applying at least an indicator indicative of said costs onto said content at a selected location thereof.

114. The method of claim 113 wherein said costs include postage for delivering said mail piece.

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125. The method of claim 113 wherein information for identifying at least one party to which said costs are attributed is derived from said data.

5 126. The method of claim 113 wherein said costs are computed based on one or more selected shipping rates.

127. The method of claim 113 further comprising the step of storing a database.

10

128. The method of claim 127 wherein said database includes statistical information based on said costs.

129. The method of claim 127 wherein said database  
15 includes information identifying said mail piece for tracking thereof.

130. A method for processing at least one mail piece to be delivered comprising the steps of:

20 obtaining from the mail piece selected information appearing thereon; and

determining, in response to at least the selected information, whether postage is dispensed to pay for delivery of the mail piece.

25

131. The method of claim 130 wherein the selected information is represented by a bar-code on said mail piece.

30 132. The method of claim 130 wherein the selected information includes data identifying an originator of said mail piece.

133. The method of claim 132 wherein the a dispensation  
35 of the postage is disallowed when said originator is determined to be unauthorized to expend the postage.

134. The method of claim 132 wherein the originator is an individual.

5 135. The method of claim 132 wherein the originator is an organization.

10 136. The method of claim 130 wherein the selected information includes information representative of an authorization code.

137. The method of claim 130 further comprising the step of receiving data representative of costs of said delivery.

15 138. The method of claim 137 wherein whether the postage is dispensed is determined in response also to said data.

139. A method for dispensing postage comprising the steps of:

20       creating a postage indicium, said postage indicium including a proof of payment for service by a first party, and transactional data comprising at least information representative of a transaction amount, said first party causing said transaction amount to be paid to  
25 a second party in response to at least said transactional data when said first party processes said postage indicium; and

          generating said postage indicium.

30 140. The method of claim 139 wherein said transactional data includes information identifying said second party.

35 141. The method of claim 139 wherein said transactional data includes information concerning an originator of said postage indicium.

142. The method of claim 139 wherein said transactional data includes an indicator indicative of a methodology by which the transaction amount is paid to the second party.

5 143. The method of claim 142 wherein said methodology includes an electronic funds transfer.

144. The method of claim 139 wherein said transactional data includes a PIN.

10

145. The method of claim 444 wherein said PIN is encrypted.

15 146. The method of claim 139 wherein said transactional data includes instructional information, the first party causing the transaction amount to be paid to the second party in response to the instructional information.

20 147. The method of claim 146 wherein said instructional information includes a request for a confirmation by the first party to the second party that the transaction amount has been paid.

25 148. The method of claim 146 wherein said instructional information includes information on a date by which the transaction amount is paid to the second party.

30 149. The method of claim 139 wherein said postage indicium includes a digital signature for authenticating at least part of said postage indicium.

150. The method of claim 139 wherein said transactional data is encoded in a bar-code.

35 151. The method of claim 139 wherein said postage indicium includes a human readable portion.

183. The method of claim 182 wherein said tangible medium includes a label.

184. A method for use in a postage dispensing system,  
5 said system including an IC card apparatus, comprising:  
storing first data representative of a value of  
postage funds in the IC card apparatus;  
changing by the IC card apparatus the value of the  
stored postage funds as a function of a value of said  
10 postage;  
providing by the IC card apparatus second data for  
creation of a postage indicium indicative of the value of  
said postage; and  
generating a postage indicium indicative of the  
15 value of said postage in response to said second data.

185. The method of claim 184 further comprising the step  
of controlling access to said system.

20 186. The method of claim 184 further comprising the step  
of checking address information on mail pieces processed  
by the system.

187. The method of claim 184 further comprising the step  
25 of obtaining shipping rate information.

188. The method of claim 184 further comprising the step  
of communicating information with a selected recipient.

30 189. The method of claim 188 wherein the communicating  
step includes the step of communicating with a  
certification authority other than the selected recipient  
to verify receipt by the selected recipient of the  
information.

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190. The method of claim 188 wherein the communicating  
step including the step of communicating with a  
certification authority other than the selected recipient  
to verify access by the selected recipient to the  
5 information.

191. The method of claim 184 wherein said second data  
includes a digital signature.

## INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US97/06831

## A. CLASSIFICATION OF SUBJECT MATTER

IPC(6) : G07B 17/04

US CL : 364/464.2; 235/375; 380/55

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 235/375,380,381; 364/464.11,464.18,464.2; 380/55

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched  
NONEElectronic data base consulted during the international search (name of data base and, where practicable, search terms used)  
NONE

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 4,743,747 A (FOUGERE ET AL) 10 May 1988, see abstract and figs. 2 & 3.	8-35 & 113-138
X	US 4,802,218 A (WRIGHT ET AL) 31 January 1989, see abstract.	1-7, 82-88, 93-112 & 184-191
X	US 4,809,185 A (TALMADGE) 28 February 1989, see abstract and figs 1-4.	1-7, 82-88, 93-112 & 184-191
X	US 4,831,555 A (SANSONE ET AL) 16 May 1989, see abstract and fig. 2.	8-35 & 113-138
X	US 4,837,701 A (SANSONE ET AL) 06 June 1989, see abstract and fig. 7.	8-35 & 113-138

☒ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

* Special categories of cited documents:	* T	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
* A		document defining the general state of the art which is not considered to be of particular relevance
* E		earlier document published on or after the international filing date
* L		document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
* O		document referring to an oral disclosure, use, exhibition or other means
* P		document published prior to the international filing date but later than the priority date claimed
	* X	document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
	* Y	document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
	* &	document member of the same patent family

Date of the actual completion of the international search

29 JUNE 1997

Date of mailing of the international search report

04 AUG 1997

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## INTERNATIONAL SEARCH REPORT

 International application No.  
 PCT/US97/06831

## C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 4,853,864 A (HART ET AL) 01 August 1989, see abstract and fig. 3.	8-35 & 113-138
X	US 4,858,138 A (TALMADGE) 15 August 1989, see abstract and figs. 1-4.	1-7, 82-88, 93-112 & 184-191
X	US 4,900,903 A (WRIGHT ET AL) 13 February 1990, see abstract.	1-7, 82-88, 93-112 & 184-191
X	US 4,900,904 A (WRIGHT ET AL) 13 February 1990, see abstract.	1-7, 82-88, 93-112 & 184-191
A	US 4,933,849 A (CONNELL ET AL) 12 June 1990, see abstract.	1-88, 93-143 & 145-191
X	US 4,947,333 A (SANSONE ET AL) 07 August 1990, see abstract and figs. 3, 7 & 8.	8-35 & 113-138
A	US 4,959,795 A (CHRISTENSEN ET AL) 25 September 1990, see abstract.	1-88, 93-144 & 146-191
A	US 4,998,204 A (SANSONE ET AL) 05 March 1991, see abstract.	1-88, 93-144 & 146-191
A	US 4,999,481 A (BAER ET AL) 12 March 1991, see abstract.	1-88, 93-144 & 146-191
A	US 5,283,744 A (ABUMEHDI ET AL) 01 February 1994, see abstract.	1-88, 93-144 & 146-191
X	US 5,490,077 A (FREYTAG) 06 February 1996, see abstract and figs 1-15.	1-7, 82-88, 93-112 & 184-191
A	US 5,508,933 A (ABUMEHDI) 16 April 1996, see abstract and fig. 2.	1-88, 93-144 & 146-191
A,P	US 5,535,279 A (SEESTROM) 09 July 1996, see abstract.	1-88, 93-144 & 146-191
X,P	US 5,602,743 A (FREYTAG) 11 February 1997, see abstract and figs. 1-3, 7, 9 & 10.	1-88, 93-144 & 146-191
A,P	US 5,602,921 A (RAMADEI) 11 February 1997, see abstract.	1-88, 93-144 & 146-191
A,P	US 5,608,636 A (GUENTHER) 04 March 1997, see abstract.	1-88, 93-144 & 146-191

# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US97/06831

## Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This international report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:  
because they relate to subject matter not required to be searched by this Authority, namely:
  
2. ☒ Claims Nos.: 89-92 & 145  
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:  
  
The subject matter of claims 89-92 are not supported by the disclosure.  
The meets and bounds of claim 145 can not be determined, since this claim depends from a non-existent claim 444.
  
3. ☐ Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

## Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
  
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
  
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
  
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.  
☐ No protest accompanied the payment of additional search fees.

**INTERNATIONAL SEARCH REPORT**

International application No.  
PCT/US97/06831

**C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X,E	US 5,625,694 A (LEE ET AL) 29 April 1997, see abstract and figs. 1-9.	1-7, 82-88, 93- 112 & 184-191